CLASSIFICATION SECRET ~~SECRET~~

50X1-HUM

CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

COUNTRY	USSR	DATE OF INFORMATION	1950
SUBJECT	Economic - Iron and steel		
HOW PUBLISHED	Daily, thrice-weekly newspapers; weekly periodical	DATE DIST.	21 Nov 1950
WHERE PUBLISHED	USSR	NO. OF PAGES	5
DATE PUBLISHED	20 Aug - 26 Sep 1950		
LANGUAGE	Russian	SUPPLEMENT TO REPORT NO.	

THIS IS UNEVALUATED INFORMATION

SOURCE Newspapers and periodical as indicated.

CITES IMPROVEMENTS IN METALLURGICAL PRODUCTION; WINTER MEASURE PLANNED

/Numbers in parentheses refer to appended list of sources./

Among innovations and improvements in metallurgical production is a plan to prevent freezing of ores in winter. The State Committee of the Council of Ministers USSR is planning in 1950-51 to undertake a series of measures designed to prevent ore from freezing during the winter while it is being carried on the railroads. It has been decided to introduce special heaters for thawing ores at the Metallurgical Plant imeni Kirov, Metallurgical Plant imeni Voroshilov, "Zaporozhstal'," and also at the Orsk-Khalilovo Combine. The Ministry of Transportation will conduct tests on the thawing of ore by steam in open-top cars.(1)

Various groups of the Institute of Refractories are now working in different cities of the USSR to assist in introducing progressive technology and the most effective method of firing refractory materials for use in the metallurgical and coke-chemical industries, power plants, and transport. The assistance of the institute has helped to cut down defective production at the Ural "Magnezit" Plant and to increase the quality of products made for open-hearth furnaces. Recently, a group of scientific associates visited the Chelyabinsk Metallurgical Plant where improved roasting furnaces, providing high-quality lime to metallurgical plants, have been built according to plans drawn up by the institute.(2)

The Ministry of the Metallurgical Industry USSR is sponsoring a contest for the best invention, technical improvement, and rationalization proposal in the fields of economy of fuel and power resources (electric power, steam, water, air, heat), utilization of secondary power resources, and automatization of hot and technological processes in the metallurgical industry. Individual persons or groups may participate, but all proposals must either have been introduced into production in 1950 or be capable of being utilized in the metallurgical industry. The prizes consist of three first prizes of 10,000 rubles each, five

CLASSIFICATION SECRET ~~SECRET~~

STATE	X	NAVY	X	NSRB	DISTRIBUTION
ARMY	X	AIR	X	FBI	

second prizes of 6,000 rubles each, 10 third prizes of 3,000 rubles each, and 20 fourth prizes of 1,000 rubles each. The entries must also contain, in addition to a full description of the proposal, its technical and economic basis and indications of where it could be most practically applied, while the effectiveness of the proposal must be shown by concrete figures on savings of fuel, power, steam, water, etc., and expressed also in monetary terms. All entries must be in by 31 December 1950 and sent to the following address: Contest Jury, "Energometallurgprom," Moscow, Tsvetnoy bul'var, 30.(3)

Improvements in casting production include the development of a new method of casting in permanent metallic molds by a group of workers from the Georgian Polytechnical Institute imeni S. M. Kirov and workers of the Tsentrolit" Plant headed by Prof F. N. Tavadze, Doctor in Technical Sciences. This precision method of casting completely replaces the existing and extremely labor-consuming method of casting in sand molds.(4)

This year, a group of metallurgical engineers, including B. S. Mil'man, A. A. Vasilenko, Ye. P. Unksov, I. O. Tsypin, F. N. Syzrankin, I. B. Meyerovich, P. V. Berezin, and I. S. Grigor'yev, were awarded the Stalin Prize for finding a method of obtaining a malleable cast iron equal in durability to steel. Since malleable cast iron is as plastic as steel, but less durable, the engineers worked on the theory that by cutting down on the heating period, thus forcing the graphite in the iron to form more quickly into beads, the resultant malleable iron would be durable as well as plastic. This superstrong cast iron has many advantages, including cheapness and ease of production. It can be produced in the usual cupola furnace. It does not break when dropped, is not affected by hammering, can be twisted, bent, and expanded. Machine parts are made of this type of cast iron. A 2-ton crankshaft can be cast at once in a mold, with almost no waste metal. The same shaft, made of steel, must be machined from a billet weighing 9 tons, thus resulting in 7 tons of cuttings.(5)

A. Kramarenko, metallurgical engineer at the Melitopol' Pump and Compressor Plant, writes, in an open letter, of the following situation in the use of modified cast iron in machine production:

Modified cast irons still are not being used in the production of tractor parts. These cast irons possess high mechanical properties, wear resistance, and heat resistance, and can in some instances replace steel, nonferrous metals, and malleable iron. Tests have shown that modified cast irons can be used for production of parts of the piston assembly of a tractor engine, including even parts such as tractor bushings, piston rings, etc., which are now cast of alloy cast iron. GOST (State All-Union Standard) demands that these cast irons contain chromium and nickel, which can be achieved only by the use of the special, Khalilovo pig iron. Meanwhile, the use of the new modified cast irons would completely eliminate this problem for machine building and would at the same time provide parts of even better quality. The difficulty in using them seems to lie in the fact that the modified cast iron made its appearance after the publication of the standards for tractor parts, and for a long time no one has thought to raise the question of changing the old standards.

For more than a year, the Melitopol' Pump and Compressor Plant has been successfully producing modified cast iron, but, for output of tractor bushings and pistons, the plant is obliged still to use the old grades of metal. In May, a special conference on the introduction of modified cast iron was held in Kiev at the request of the Academy of Sciences Ukrainian SSR, but the matter has gone no further than this.(6)

50X1-HUM

Individual metallurgical plants have also been concerned with improving production practices. The "Serp i molot" Plant in Moscow has introduced innovations in repair of equipment. Formerly, the mills in the rolling shop underwent major repairs of basic and auxiliary equipment twice a year. This type of repair usually took 6-12 days and usually occurred before the May and November holidays. During these months, the shop's production plans were reduced to account for the idleness of the mills.

To eliminate these long delays, three mechanics in the rolling shop originated a plan for repair of the mills and auxiliary equipment whereby repairs are not done twice a year, but rather throughout the entire year on days when the mills would not be in operation. The mills are repaired by different parts at different times.

At the beginning of this year, a repair schedule for each mill was drawn up and all work was planned for the days when the mill would not be in operation. Unlike the previous method where the entire mill or one part was disassembled, the present method provides for the replacement of each part by a new part which has been previously assembled and tested. All this takes half or sometimes one third the former repair time.

In March, for example, the schedule called for replacement of the base of the fourth stand of the "450" mill. Formerly, the stand would be dismantled and a new base assembled in place of the old. Under the new system, however, the entire stand was prepared and assembled in the machine repair shops and then installed on a nonworking day for the mill. Replacement of the entire stand took only 8 hours, as compared with the former practice which took at least 24 hours. Repair of the roller tables is done according to the same principles, with new parts ready and waiting in reserve, and the job takes one or 2 hours, as compared with 7-8 hours formerly. Reserve parts for almost all the shop's equipment are now produced on a regular basis. Parts for the larger units are produced in the machine repair shop and the smaller parts in the workshops of the rolling shop.

The metal-cutting shears on the "300" mill used to break down every 4 months. The shop now repairs these shears every 3 months, independent of the condition of the shears, so that they are always in good shape.

Under the new system, in the first 6 months of 1950, the "250" mill and "300" mill operated for an additional three shifts, the "450" mill for one extra shift, and the "750" mill for five extra shifts. The idleness of the "250" mill for repair work decreased from 0.1 percent in April to 0.03 percent in May, zero in June and July, and 0.05 percent in August (in percent of working time).(7)

The plant's rolling shop has set a new record for productivity. Operators of the "750" mill have rolled 610 billets in one shift, 143 more than the plan. This is a new record for USSR rolling mills.(8)

The plant's cable shop in September received an order for 7 tons of steel cable for the freight-hoisting equipment of the Kuybyshev power project. The first 3 tons have been sent to the project.(9)

Steel workers at the plant's open-hearth furnace No 1 had pledged to increase the furnace run between repairs to 250 melts, but have already passed the 291st melt. One of the plant's leading workers has set a new record, obtaining 18.3 tons of steel per square meter of hearth.(10)

A Stakhanovite at the Moscow Metal-Rolling Plant, Ministry of the Metallurgical Industry USSR, has introduced an innovation which has increased labor productivity and the productivity of a mill in the rolling shop. After studying the maximum load which the mill was able to handle, he was the first in the shop to roll sheets in three piles, each containing four sheets.(11)

50X1-HUM

At the Moscow Hard Alloys Combine, a brigade of innovators recently drew up the plans for a new and originally designed machine, an automatic hydraulic press, designed for pressing hard alloy tools used in working metals. Up until 1948, pressing of hard alloy products was done by hand. Two years ago, new automatic presses were introduced, a great step forward in powder metallurgy. Each press substituted for seven workers and increased quality substantially. The use of the presses meant great savings, totaling several million rubles annually. The new press is more modern than these. Two test models of it are now being built.(12)

In the last 8 months in Leningrad, the Rolled Steel, Wire, and Cable Plant imeni Molotov has given special attention to the introduction of the most modern technological processes. Measures directed toward improving the equality of production were particularly successful. The operation of the pickling department in the steel-wire shop was improved. The lime supply system was improved, and the drying system and regulation of technological processes were organized in a new way. The cooling apparatus of the electric furnaces in the cold-rolling shop were converted to the more modern no-value system. The Leningrad Polytechnical Institute helped in this work. Optical, electromagnetic, and other improved methods of defectoscope, operation were introduced for the first time in the plant's shops.

The measures proposed for introduction and adoption of new types of products were successfully put into effect. Hot working of band metal is now on a higher level, meeting higher technical demands. Among the new types of goods put into production this year by the plant are cable designed for use in hydrological work, square-section wire for the textile-machine building industry, alarm clock springs, and many more. The plant also started production of spring washers for use in the new, highly productive automatic machines, and also started heat treatment of them in conveyer furnaces.

Considerable work was also done on automatization of production. After the patenting furnaces were rebuilt, they were converted to full automatic regulation. The new conveyer-type electric furnace in shop No 6 was completely automatized. The first models of electromagnetic instruments which automatically determine the properties of the metal are of particular interest among the innovations. These are now being tested.

In the field of mechanization of labor-consuming operations the plant has done much, but has far to go. Twenty-four workers are still used in hand assembly of production in the hot-rolling shops. In a short time, all these 24 workers will be released for other sectors. The plant has plans to use a special crooked conveyer in assembling products. The equipment for it has been ordered and construction of the conveyer has begun.

According to preliminary data, in the last 8 months the plant increased labor productivity 22.5 percent over the same period in 1949. Output of hot-rolled products, wire, and cable during this same time increased from 10 to 25 percent. Consumption norms for fuel, power, and metal have greatly decreased. Dut to the above-plan savings by decreasing production costs, the plant realized more than one million rubles in profit.

There still remains much to be done in the second half of 1950. New machines for polishing wire will be introduced into steel-wire production, and automatization of the furnaces used in this production is being continued. In cold-rolled production, the plant plans to modernize the rolling of fine-gauge band metal, introduce mass production in the polishing of the bands, and put into operation a new multiroller machine. Much will be done in improving other types of production as well.(2)

SECRET

The plant is now meeting orders for rolled metal, steel cable, and spring steel for the Volga power plants and the Main Turkmen Canal.(3) For 9 months in succession, the plant has held first place in the all-Union competitions among enterprises of "Glavmetiz" (Main Administration of Metal Products Industry) and now holds the Transferable Red Banner of the VTsSPS (Vsesoyuznyy Tsentral'nyy Sovet Professional'nykh Soyuzov's All-Union Central Council of Trade Unions) and of the Ministry of [illegible] Metallurgical Industry USSR. In these 9 months, the plant's workers have received from the ministry prizes totaling 1,055,000 rubles, 740,000 of which have gone as prizes to individual workers and engineers and the rest used for the workers' cultural needs.(14)

SOURCES

1. Moscow, Gudok, 20 Aug 50
2. Leningradskaya Pravda, 6 Sep 50
3. Moscow, Trud, 22 Sep 50
4. Yerevan, Kommunist, 5 Sep 50
5. Moscow, Ogonek, No 34, Aug 50
6. Kiev, Pravda Ukrainy, 12 Sep 50
7. Moscow, Trud, 14 Sep 50
8. Moscow, Komsomol'skaya Pravda, 12 Sep 50
9. Moskovskaya Pravda, 19 Sep 50
10. Minsk, Sovetskaya Belorussiya, 30 Aug 50
11. Vechernyaya Moskva, 26 Sep 50
12. Vechernyaya Moskva, 31 Aug 50
13. Leningradskaya Pravda, 30 Aug 50
14. Moscow, Izvestiya, 30 Aug 50

- E N D -